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AUTHOR O'Loughlin, Michael; Campbell, Malcolm B.
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ABSTRACT

This paper deals with questions having to do with the nature and effects of teachers' beliefs about schooling, and to the psychological relationship between theory and practice. It is posited that teachers' beliefs are likely to have a profound influence on their actions. A critical analysis of current school performance and teacher education methods leads to the conclusion that a single type of epistemology, primarily empiricist in nature, is pervasive in schools and in teacher education generally. Suggesting that the prevailing set of beliefs is over-simplistic, the primary problem of teacher training as a developmental issue is explored. The issue is addressed from a psychological point of view in terms of a proposed process of reflective inquiry. The inquiry model is then extended and it is argued that a similar inquiry system is necessary to help students build connections between theory and practice. Both uses of inquiry are illustrated by means of examples from other bodies of literature. A philosophical justification of a reflective inquiry approach to teacher education is presented with emphasis on the benefits in terms of teacher empowerment. A brief synopsis is presented of a current attempt to implement these ideas in the context of a foundational course in educational psychology. The primary purpose of the paper is to provide the basis for a new research agenda in teacher education. (JD)

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Teacher Preparation, Teacher Empowerment, and Reflective Inquiry: A Critical Perspective

Michael O'Loughlin

Malcolm B. Campbell

Bowling Green State University

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NOTE: Draft - Comments welcome. Please address all correspondence to Michael O'Loughlin, Ph.D. or Malcolm B. Campbell, Ph.D., Department of Educational Foundations and Inquiry, Bowling Green State University, Bowling Green, Ohio 43403.

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If we can take it as a given, considering the crisis in public education, that teacher education methods in this country are due for reappraisal, what are the crucial questions that need to be addressed? Among the most important, from a critical perspective, we believe, are questions having to do with the nature and effects of teachers' beliefs about schooling, and questions pertaining to the psychological relationship between theory and practice. With respect to teachers' epistemological assumptions or beliefs we are particularly curious as to the origin of those beliefs, their contents, their influence on practice, and most importantly, their potential for epistemological enrichment. With respect to the relationship between theory and practice we are curious as to how this transition occurs, what influence epistemological assumptions have on the process, and what factors act to impede or facilitate this transition.

To preview our position, we argue, drawing implications from studies in other fields, that teachers' beliefs are likely to have a profound influence on their actions. We then engage in a critical analysis of current school performance and teacher education methods, leading to the conclusion that a single type of epistemology, one that is primarily <u>empiricist</u> in nature, is pervasive in our schools, and in teacher education generally. We suggest that the prevailing set of beliefs is over-simplistic, and we pose the primary problem of teacher training as a <u>developmental</u> issue: How can we facilitate in our students the development of a more complex epistemological model of the teaching-learning process? Having addressed this issue from a psychological point of view in terms of a proposed process of reflective inquiry, we then extend the inquiry model and argue that a

similar inquiry system is necessary to help students build connections between theory and practice. Both uses of inquiry will be illustrated by means of examples from other bodies of literature. After that, a philosophical justification of a reflective inquiry approach to teacher education is presented, with particular emphasis on the benefits in terms of teacher empowerment. The limits and possibilities of the inquiry approach are not examined, but we present a brief synopsis of a current attempt to implement these ideas in the context of a foundational course in educational psychology. Since this model is theoretically based but supported by research from other fields, a primary purpose of this paper is to argue that it provides the basis for an important new research agenda in teacher education.

Influence of prior beliefs on new learning

The initial impetus for the conceptualization being developed here comes from recent research in cognitive and cognitive-developmental psychology which is engaged in an examination of the relationship between prior beliefs and new information in various learning, reasoning and social judgement contexts. The consensus from studies in all of these fields[1] is that, in many situations, prior beliefs have an overwhelming influence over how new information is processed. While there are certain advantages to seeing the world through a single theoretical lens, and even scientists do not abandon a theory at the first sign of discrepant evidence, nonetheless, there are obvious educational disadvantages in regarding one's own view as the only valid perspective; in failing to conceive of or evaluate alternate viewpoints; and in failing to understand the role empirical evidence can play in helping one weigh the evidence for competing theories in order to arrive at a balanced judgment.

In recent research we engaged in a developmental investigation of the skills involved in the coordination of prior beliefs about a causal phenomenon and new evidence that bore on the same phenomenon.[2] Findings from that research illustrated in detail the distorting effects prior beliefs have on the processing of new evidence for children, non college-educated adults, and to some extent, for college students too. Most important, because the research focused on the coordination between theory and evidence in reasoning, useful insight was gained into the process by which people learn, in Scribner's words,[3] to put brackets around their own beliefs, in order to contemplate alternate viewpoints and to evaluate the bearing of evidence on their own and other's perspectives in order to draw reasoned conclusions. Central to this process appears to be a metacognitive or reflective capacity which enables individuals to think about their own and other theories, rather than merely to think with or through their own theoretical perspective.[4] While our research has not directly addressed the issue of whether this metacognitive capacity is naturally developing or requires an appropriate educational climate for its facilitation, it would appear that opportunities to articulate and reflect on one's own viewpoint are critical to the development of reflective awareness.[5]

Could these findings be applicable in the more complex world of teaching and people's beliefs about teaching? If they are, what implications does this have for how we view teacher preparation? Karmiloff-Smith and Inhelder[6] first introduced the notion of implicit theories or theories-in-action to describe the set of unspoken assumptions that appeared to underlie the problem solving behavior of

young children. We agree with Schon[7] and others that implicit theories also underlie the approaches to decision-making and practice espoused by professionals, including teachers. Indeed, after 12 years of formal schooling, could anybody graduate from our schools without a firm and almost unshakeable set of beliefs, whether positive or negative, as to the purpose of schooling and the nature of pedagogy? The likelihood that those students who choose teaching have highly developed implicit theories of teaching are even greater since they are likely to have been benevolent and assiduous observers of the process of schooling. This only serves to complicate matters, however, since the research alluded to earlier[8] suggests that theories that have been built up from salient personal experience and that are comprehensive in nature, are likely to be particularly resistant to change.

If, as we suggest, teaching can be appropriately conceptualized as facilitating change in view among students, a number of research issues become salient: (1) What kind of implicit and explicit theories or beliefs about the nature of knowledge and the purpose of education do our preservice and inservice teachers hold? Have student teachers attained a cognitive developmental level which permits them to engage in the kind of reflective abstraction necessary to going beyond their own viewpoint to a more complex epistemological stance? How do teachers' beliefs impact upon the practice of teaching, and hence on the quality of education? What role do we, teacher educators, play in facilitating or retarding the cognitive development and epistemological expansion of our students' views?

Teachers and their beliefs: A psychological perspective

1. The current situation

A useful way to begin consideration of teachers' beliefs and their effects is by examining the different metaphors that have characterized the long-standing divide between "progressive" and "traditional" educators. Barnes,[9] for example, refers to this distinction as the difference between transmission and interpretation approaches to teaching. Belenky et al.,[10] drawing upon Freire's work, distinguish between the teacher as banker (depositing knowledge in students' heads), and the teacher as midwife (helping students give birth to ideas). In a useful discussion of the historical origins of this dichotomy, Jackson distinguishes between mimetic and transformative approaches to teaching. Referring to the mimetic approach, Jackson says that "it gives a central place to the transmission of factual and procedural knowledge from one person to another through an essentially imitative process".[11] In this approach to teaching, the teacher plays the role of expert, the one who holds the key to all knowledge. The teacher's primary purpose is to have students reproduce the knowledge on offer. Thus, a primary focus of schooling is on teaching for right answers. From an epistemological point of view, this approach assumes that knowledge is cumulative; that knowledge can be predetermined by the teacher; and that students' possession of a copy of the teacher's knowledge can be ascertained by means of objective tests which assess the level of success students have had in acquiring "the right answers." The alternative, transformative approach, with its primary focus on facilitating change in students' understanding and ways of knowing, appears to be

dialectically the opposite of the mimetic approach. This approach will be explored in detail below.

The distinction between mimetic and transformative approaches to teaching is not merely an academic one. Many of the educational commentaries and reform reports of the eighties would suggest (1) that our public schools are experiencing a serious intellectual crisis; and (2) that the mode of instruction in our schools is almost exclusively mimetic. Although we know of no studies which have addressed the possibility of a causal link between the two, the plausibility of such a link is very high.

Consider first the crisis in public education. A torrent of books, reports and commentaries on the state of our schools has poured forth in recent years.[14] Commenting on trends in the National Assessment of Educational Progress (NAEP), Glaser[15] suggested that while the back to basics movement may have caused test scores to increase, higher order skills were being acquired less well. This conclusion was borne out in a subsequent NAEP report which was released in December, 1986. That study, reporting on the writing skills of eleventh-graders nationwide, concluded that fewer than one quarter of all eleventh-graders could write an adequate persuasive communication, and less than 5% could adequately comprehend a piece of technical writing. Considering the symbiotic relationship between reading and writing, NAEP concluded that there is "a pervasive lack" of higher-order thinking skills in our schools.[16] At the same time other reports and commentaries[17] suggest that many schools are doing a dismal job of imparting basic facts and knowledge about our culture to students.

These facts may come as a surprise to those who follow the progress of schools only by keeping an eye on the scores yielded by standardized tests, which, as Albert Shanker[18] recently noted, portray most school systems, like the children of Lake Woebegone, as "above average." Considered in terms of the findings from some of the recent field studies of our schools, however, the findings make a lot of sense. Walter Karp, writing in Harper's some time ago, summarized the critical points from the major field studies by Goodlad and Sizer as follows:

> Consider how effectively America's future citizens are trained not to judge for themselves about anything. From the first grade to the twelfth, from one coast to the other, instruction in America's classrooms is almost entirely dogmatic. Answers are 'right' and answers are 'wrong,' but mostly answers are short. 'At all levels, [teacher-made] tests called almost exclusively for short answers and recall of information,' reports Goodlad. In more than 1,000 classrooms visited by his researchers, 'only rarely' was there 'evidence to suggest instruction likely to go much beyond mere possession of information to a level of understanding its implications.' Goodlad goes on to note that 'the intellectual terrain is laid out by the teacher. The paths for walking through it are largely predetermined by the teacher.' The give-and-take of genuine discussion is conspicuously absent.' Not even 1% of instructional time, he found, was devoted to discussions that 'required some kind of open response involving reasoning or perhaps an opinion from students.... The extraordinary degree of student passivity stands out.'
>
> Sizer's research substantiates Goodlad's. 'No more important finding has emerged from the inquiries of our study than that the American high school student, as student, is all too often docile, compliant, and without initiative.' There is good reason for this. On the one hand, notes Sizer, 'there are too few rewards for being inquisitive.' On the other, the heavy emphasis on 'the right answer...smothers the student's efforts to become an effective intuitive thinker.'[19]

These conclusions are corroborated by Benjamin Bloom. In 1984, reflecting on the uses to which his Taxonomy has been put, he commented:

> After the sale of over one million copies of the Taxonomy of Educational Objectives--Cognitive Domain ... and over a quarter of a century of use ... in preservice and inservice teacher training, it is estimated that over 90% of test questions that U.S. public school students are now expected to answer deal with little more than information. Our instructional material, our classroom teaching methods and our testing methods rarely rise above the lowest category of the taxonomy--knowledge.[20]

It seems reasonable to conclude, therefore, that most teachers, in most of our public schools, spend most of their time practicing a mimetic or traditional approach to teaching. This focus on transmission of knowledge (1) appears not to be working in terms of its primary aim; and (2) as we have argued elsewhere[21] it appears deleterious to intrinsic motivation and cognitive development because it induces in students passivity, lack of cognitive engagement, and lack of personal responsibility for their own learning.

The interesting issue then becomes the kind of epistemological assumptions these mimetic teachers hold, and the degree to which these beliefs are implicit or explicit. We do not know the answer to these questions and, indeed, they represent the first step in our proposed research agenda. Very few studies that we are aware of[22] have addressed this issue. However, theoretical discussion[23] would suggest that people who teach mimetically must necessarily hold some implicit epistemological assumptions that are consistent with that method of teaching. Although we have not yet begun formal data collection, informal conversations with preservice and inservice teachers--our students--would appear to corroborate this view.

Undergraduate preservice teachers provide a particularly interesting case with respect to the issue of teacher education both because of their background and because of their probable level of cognitive development. First, with respect to background, given the prevailing mimetic ethos in our schools, it should hardly surprise us if most students hold the empiricist view that knowledge is reducible to objective facts; that teaching is the transmission of facts; and that learning is the accumulation of facts. Could we possibly expect our students to see the ways of knowing any differently after such an experience? Second, even ignoring the probable cognitive deficits our entering students suffer because of the lack of cognitive challenge in so many schools,[24] Perry's[25] theory of intellectual development would suggest that entering freshmen are likely to be dualistic thinkers, who see the world in terms of black and white, right and wrong answers. Considered in these terms, the enormous challenge of teacher education becomes evident. Can we be content to leave our students in the simplicity of a dualistic world, in which an empiricist epistemology underlies their only conception of knowing? Or should we feel obligated to facilitate the epistemological and cognitive development of our students so that they learn to think about learning from a variety of perspectives, and learn about a variety of ways of knowing? If teachers are to have a vision toward which they can subsequently lead their students, the latter would seem critical.

What role do teacher preparation institutions play in either challenging or confirming prospective teachers' beliefs about the process of learning? Regrettably, the developmental perspective being advanced here appears quite foreign to our conventional approach to

teacher training. We use the term "training" advisedly here. Despite likely protestations of virtuous intentions, the reality is that the primary focus of conventional teacher preparation usually centers on a narrow, prescriptive form of training. Consider Brookfield's definition of training: "In training, a set of clearly defined skills are transmitted and adults are required to assimilate them in the manner prescribed by the trainer, employing agency or certification body".[26] This would appear to be an apt description of the behavioristic textbooks, prescriptive solutions and transmission mode of teaching that characterize so much of our approach to teacher preparation.[27] While internships and field experiences are a common component of teacher training, how effective are they likely to be in helping students become good teachers unless they are incorporated into an integrated curriculum in which students develop productive relationships with mentors, and in which students are given opportunities to expand on their understanding of teaching by reflecting on their learning, reflecting on their practice, and reflecting on the interrelationship between the two?

Despite the major crisis in our schools, and despite the extraordinary fact that 40% of the teachers we train leave teaching permanently within two years of graduation,[28] our profession seems unable to think about teaching in new ways. As Albert Shanker (1987) noted recently, our only concept of reform appears to be that if we do more of what we are already doing, and do it better, things will improve. Here's how Shanker puts it:

> If the student doesn't score well, it's because the teacher didn't pour the knowledge, didn't pour the right stuff, didn't pour enough, or didn't have the right pouring knack.[29]

It is remarkably simplistic to suggest that teaching would improve if teachers could be induced (e.g., via merit pay), or coerced (e.g., through some accountability mechanism) to "do better;" or to suggest that student achievement would increase if the school day or school year were lengthened. While such suggestions are grist for the mill of politicians and government'[30] they do justice neither to the psychological complexity of the problem nor to the professional standing of teachers. Worse still, unless we show a willingness to grasp this problem intellectually, there is a real possibility, as Raymond Wlodkowski recently noted,[31] that we risk becoming spectators as educational reform and teacher preparation are taken over by states and other groups which are obligated to find working solutions to the educational problems our schools are generating.

2. An alternative perspective on teaching

For historical reasons, having to do primarily with the close relationship between teacher training and the behaviorist tradition that has dominated educational psychology in this century, teacher preparation, as already noted, has subscribed to an empiricist worldview.[32] Other fields of education have been less ideologically constrained and have, as a result, developed richer metaphors for the teaching-learning process. We focus here on advances in the field of adult education, in particular, because of the conception of learning in that field as a process of moving from an existing point of view or way of knowing to more complex ways of knowing through involvement in a process of reflective inquiry. We also examine Schon's research into the professional education of non-teaching professionals because

of the important insights it yields into the role of reflective inquiry in bridging the gap between theory and practice.

To understand the different conception of teaching and learning that has emerged in the field of adult education it is helpful to look at the origin of these ideas. With the increased enrollment of "nontraditional" students in recent years, the field of adult and continuing education has itself become nontraditional. Adult educators have had to deal with students from widely diverse backgrounds, who often demanded not only relevance and meaningfulness from their teachers, but who also sought opportunities for participation and for personal and professional growth. In attempting to develop a model of instruction that was responsive to these demands, inquiry in adult education has overcome traditional disciplinary boundaries to incorporate, along with its own body of theory, notions of reflection and praxis from the educational thought of Dewey, Freire and others, as well as insights about the course and telos of human development from recent advances in developmental psychology.[33]

As a result of these dynamic influences, research and theorizing in adult education has yielded a concept of adult learning as student-centered and self-directed.[34] Likewise, it has redefined the role of the teacher as a facilitator,[35] mentor,[36] coach,[37] and even midwife.[38] A common feature of all of these metaphors is that they acknowledge the legitimacy--and indeed, the existence--of adult learners' prior beliefs and experiences. Teaching is conceived as a process of facilitating the learner in recognizing his or her existing way of knowing, and in constructing new ways of knowing, by providing a supportive, challenging learning environment in which the primary

focus is on reflective inquiry as a means to epistemological and cognitive development in a personally meaningful context. Since the primary goal of education is seen as the personal growth of individual students, this approach can be appropriately characterized as developmental or transformative in nature. This type of teaching, as Jackson[39] notes, is the dialectical opposite of the transmission or mimetic approach that appears to be prevalent in conventional public school education and teacher training.

The goal of adult education, Brookfield[40] maintains, is to facilitate "the nurturing of self-directed, empowered adults." This type of growth occurs, according to Brookfield, in a learning environment in which (1) the self-worth of each learner is valued and respected; (2) the curriculum is built around the needs and aspirations of the learners; and (3) adult learners feel safe to challenge each other's views, and to leave their own views open to challenge. The key to this type of learning, as Brookfield notes, is the idea of praxis, incorporating reflective inquiry and practical experiences in the learning setting:

> Central to this concept, however, is a process long ago recognized as fundamentally educational by such philosophers of education as Dewey (1916) and Neill (1960). This process centers on the need for educational activity to engage the learning in a continuous and alternating process of investigation and exploration, followed by action grounded in this exploration, followed by reflection on this action, followed by further investigation and exploration, followed by further action, and so on. This notion of praxis as alternating and continuous engagements by teachers and learners in exploration, action, and reflection is central to adult learning. It means that explorations of new ideas, skills, or bodies of knowledge do not take place in a vacuum but are set within the context of learners' past, current, and future experiences....
>
> Adults do not acquire and internalize ideas, skills, knowledge, and insights in a context-free vacuum. They interpret these through the mediatory mechanisms they have developed, assign

> meaning to them, codify them according to categories they have evolved, and test them out in real life settings. In curriculum design, selection of materials, and use of educational methods, therefore, facilitators should anticipate, and build upon, this tendency of adult learners to interpret, understand, codify, and assign meaning to new ideas, insights, skills, and knowledge in the context of their own experiences.[41]

In order to gain a concrete sense of how these ideas are translated into practice, and, particularly, to illustrate the psychological necessity of these ideas in the education of teachers, we will briefly explore two studies that offer insights into related aspects of this type of reflective learning.

(i) Facilitating change in view

To illustrate how effective teaching can facilitate epistemological development and can aid people in moving from a dualistic to a more multiplistic and eventually relativistic conception of events, we will briefly explore a study by Mary Belenky and colleagues,[42] which addressed the issue of women's ways of knowing. For that study Belenky et al. interviewed 135 women from diverse educational backgrounds. A primary focus of the research was on the women's conceptions of truth, authority and knowledge, as well as on the manner in which their ways of knowing were advanced or retarded by the various formal adult learning experiences to which they were exposed. The research is of interest here because it is based on a theoretical premise that is identical to the one we articulated earlier, namely, to quote Belenky et al., "...our assumptions about the nature of truth and reality and the origins of knowledge shape the way we see the world and ourselves as participants in it".[43] Although their study focused exclusively on the epistemological and intellectual development of women, Belenky et al.

speculate that the findings could well be applicable to men also.[44] Our point is that all learners come to the learning situation with preexisting ideas and assumptions. Consequently, we suggest that all teaching should begin by recognizing and building upon these ideas. Though we believe this to be equally true of classroom learning and teacher education, we will focus only on the latter here.[45]

Although many of the findings from Belenky et al.'s research are interesting and worthy of comment, we will focus here only on the pedagogical implications. In the concluding chapters of their book, Belenky et al. attempt to synthesize their findings in order to paint a portrait of the kind of teaching that the women they interviewed found facilitative of their personal growth. What emerges is the concept of connected teaching. A connected teacher is a teacher who cares about students and their learning and who provides learning experiences that give students opportunities for growth.

Central to the concept of connected teaching is the importance of affirming the prior knowledge and values the learner brings to the setting. As Belenky et al. note, referring to the responses of their subjects, a learners prior knowledge may not amount to much, but it is the only means of understanding he or she presently possesses:

> Most of the women interviewed made it clear that they did not wish to be told merely that they had the capacity or the potential to become knowledgeable. They needed to know that they already knew something (although by no means everything), that there was something good inside them. They worried that there was not.[46]

The consequence of ignoring people's existing ways of knowing, as Belenky et al. point out, is that students go through the motions of mastering separate knowledge without every making the connections that would help make this knowledge their own. The devastating effects

which this discounting of personal knowledge can have on a neophyte learner is graphically illustrated by an incident that one of the women experienced. The professor in this woman's introductory science class did an experiment at the first class meeting to demonstrate to the students that their personal experience and the evidence of their senses counted for nought in the understanding of scientific phenomena. Here is how Belenky et al. describe the woman's reaction to the experience:

> Her sense of herself as a knower was shaky, and it was based on the belief that she could use her own firsthand experience as a source of truth. This man was saying that this belief was fallacious. He was taking away her only tool for knowing and providing her with no substitute (emphasis added).[47]

The woman dropped science the next day, never again to return to it. Equally devastating, Belenky et al. report, are teachers who set themselves up as omniscient. If a teacher sets him or herself up as an expert, then, even when expressly invited to do so, students will not risk challenging the teacher by expressing a dissonant view or even by raising questions. In fact,--and this is surely a phenomenon we are all familiar with--to the extent that students perceive the teacher as holding the right answers, they will attempt to force the teacher into a mimetic mode in which the truth is revealed. The students then treat the teacher's words as sacrosanct and absorb them passively. The implications--and these findings are nicely corroborated by Barnes' elegant research into classroom communication patterns[48]--are that unless we, as teachers, become risk-takers, who are "willing to think out loud with our students"[49] and let them see us reaching for solutions, they will passively absorb our words and never become engaged learners at all. Barnes[50] would express it more

succinctly: an open style of classroom communication fosters exploratory thinking, while a closed system encourages students to reach only for final-draft, well-formed, right answers.

Belenky et al. refer, in the piece previously quoted, to prior knowledge as a learner's initial tool for knowing. With this in mind, Belenky et al. propose that the concept of midwife provides a useful metaphor for teaching. Contrasting Freire's banker model of teaching (i.e., a mimetic or transmission approach) with the midwife view, Belenky et al. sum up the role of a midwife teacher in fostering ways of knowing as follows:

> Many women expressed--some firmly, some shakily--a belief that they possessed latent knowledge. The kind of teacher they praised, and the kind for which they yearned was one who would help them articulate and expand their latent knowledge: a midwife teacher. Midwife teachers are the opposite of banker teachers. While the bankers deposit knowledge in the learner's head, the midwives draw it out. They assist the students in giving birth to their own ideas, in making their own tacit knowledge explicit and elaborating it.[51]

The concept of learning that underlies this approach to teaching is partly a cognitive developmental one. Development is seen as moving from the articulation of an existing viewpoint to the eventual consideration of multiplistic viewpoints through a process of intersubjective sharing in which the teacher occupies the role of partner and guide[52] rather than determiner of the learning outcomes. Belenky et al. characterize this developmental process as follows:

> The connected class recognizes the core of truth in the subjectivist view that each of us has a unique perspective that is in some sense irrefutably 'right' by virtue of its existence. But the connected class transforms these private truths into 'objects,' publicly available to the members of the class, who, through 'stretching and sharing' add to themselves as knowers by absorbing in their own fashion their classmates' ideas.[53]

Central to this process of connected teaching, therefore, as the quote indicates, is some form of reflective inquiry in which learners come to reflect upon their current way of knowing and on alternate viewpoints in order to deepen their understanding of themselves as learners.

A number of other features of the connected teaching model are worthy of mention, though we will not explore them in depth. First, this is an explicitly student-centered approach. The essence of connected teaching is to begin by attempting to see the world from the learner's viewpoint, because, without that view we have no means of understanding how to facilitate growth. Separate teaching, by contrast, is a teacher-centered or curriculum-centered approach in which the teacher predetermines the learning experiences that will be beneficial for all students. Second, connected teaching requires both epistemic humility and willingness to self-disclose on the teacher's part. With respect to humility, as noted earlier, there is no room here for omniscience, since omniscience is accompanied by an aura of certainty which precludes exploration and risk-taking on the students' part. The best teachers are themselves learners, who invite their students to join them in the quest for truth. With respect to self-disclosure, the most predominant theme in adult education is perhaps the importance of caring.[54] As Noddings puts it, the teacher must be willing to "be totally and nonselectively present to the student--to each student"[55] Finally, with respect to empowerment, which, as we noted earlier, Brookfield identified as the fundamental purpose of adult education, Belenky et al. suggest that a good educational institution is a nurturing environment which "empowers its clients by fostering their expertise."[56]

We suggest that with respect to teacher preparation, a field which students often appear to enter with well-formed, but narrow and limiting assumptions about epistemology and pedagogy, the implications and potential of the connected teaching approach are powerful and certainly worthy of systematic study if we aspire to producing competent, flexible professionals.

(ii) Bridging the gap between theory and practice

How we choose to help our students bridge the gap between theory and practice in any field of professional preparation, Donald Schon[57] argues, depends on the underlying epistemology of practice to which we subscribe. Schon argues that much of current professional preparation is based on an epistemology which is rooted in technical rationality. This epistemology holds that real-world problems are well-structured and that instrumental solutions to these problems are available and can be taught.

To the contrary, Schon, who has spent many years investigating how to help professionals in a variety of fields bridge the gap between theory and practice,[58] argues that real-world problems are almost invariably poorly structured. He says that they are often characterized by uncertainty, uniqueness and value conflicts. Consequently, professionals who have been socialized to believe that there is one right way, experience great difficulty when confronted with the real world. This, we believe, explains why 40% of new teachers, as noted earlier, abandon the profession within two years. Schon argues that we need to switch the focus of professional training away from a narrow, prescriptive approach. Instead, he says, our goal should be to empower students to function competently in situations in

which there is never a single, obviously right answer. Since few would argue that teaching does not involve complex decision-making in an ever-changing environment, the issue becomes one of finding out how to foster appropriate decision-making skills in teachers. Schon's research, we believe, offers promising insights into how research should be conducted into this relationship between theory and practice.

Schon focuses his attention on the practicum - the time honored method of providing practical experiences for students - and notes, again, that the effectiveness of a practicum depends upon the epistemology on which it is premised. For those who view professional knowledge only in terms of sets of facts, rules and procedures to be applied to instrumental problems, then the practicum is merely an instrument of <u>training</u>, in the narrow, prescriptive sense of that term, as denoted earlier by Brookfield. Others view the practicum as an opportunity for students "to think like," for example, "a teacher." In this case, Schon notes, training is likely to go beyond procedural knowledge to include inquiry into the decision-making processes used by seasoned professionals. The case study method of teaching, which is commonly used in business schools, is prototypical of this approach. The limiting epistemological assumption that constrains this kind of approach to integrating theory and practice is that it is based on the assumption that there is one best answer for any given problem.

Schon argues that the preferred type of training is a <u>reflective practicum</u> which enables students to become effective decision-makers. Referring to on-line decision-making as "reflection-in-action," Schon sums up the potential and purposes of the reflective practicum as follows:

> If we focus on the kinds of reflection-in-action through which practitioners sometimes make new sense of uncertain, unique or conflicted situations of practice, then we will assume neither that existing professional knowledge fits every case nor that every problem has a right answer. We will see students as having to learn a kind of reflection-in-action that goes beyond statable rules - not only by devising new methods of reasoning, as above, but also by constructing and testing new categories of understanding, strategies of action and ways of framing problems.[59]

With his educational philosophy expressed thusly, it should hardly be surprising that the type of education Schon advocates, resonates closely with the connected teaching approach suggested by Belenky and colleagues. To begin with, Schon recognizes the importance of the tacit knowledge that the individual has.[60] He suggests that all of us hold implicit theories-in-use which, although unconscious, influence our approach to practice. Schon's research reveals that the challenge of getting students to change their views is minor in comparison with the challenge of enabling them to permanently modify their implicit epistemological assumptions so that their approach to practice is permanently changed. In research on the transition from what he refers to as a Model I approach (practice based on unreflective reasoning) to a Model II approach (practice based on explicit reflection), Schon found that students can, with appropriate training, master the epistemological tenets underlying Model II, and can even implement them in a practicum setting. He found however, that when functioning in a real-world setting, with increased anxiety, escalated personal aspirations, and the complexity of the environment, many students become reactive and revert to Model I responses which have become a reflexive part of their behavioral repertoire. These findings highlight (1) the importance of

addressing the epistemological assumptions and psychological processes underlying practice; and (2) the fact that acquisition of artistry in a field as complex as, say, teaching, is likely to be a slow, and very gradual process.

The key to effective education in this domain, according to Schon, is to begin by having students reflect on their own theories and their own actions in an attempt to make their tacit theories explicit so that they become available for critical reflection. As Schon notes, "When inquiry into learning remains private, it is also likely to remain tacit."[61] And, of course, to the extent that it remains tacit, it will continue to be impervious to change. Just as Belenky et al. captured the essence of teaching in the midwife metaphor, Schon advances coaching as a metaphor for teaching in a very similar way:

> The student cannot be taught what he needs to know, but he can be coached: 'He has to see on his own behalf and in his own way the relations between means and methods employed and results achieved. Nobody else can see for him, and he can't see just by being 'told,' although the right kind of telling may guide his seeing and thus help him see what he needs to see.'[62]

Schon sees coaching as a process of collaborative inquiry in which coach and student each inquire "more or less consciously into his own and the other's changing understandings."[63] Just as Belenky et al. noted, effective coaching requires (1) allowing students to make connections between classroom material and personal experience; (2) self-disclosure and risk-taking by both coach and student in their mutual quest for understanding; and (3) a reflective environment in which students have the opportunity to render their tacit theories and practices explicit, so that these theories become

objects of exploration and critical reflection. Schon also advocates the importance of exposing students to multiple models of practice, and to having them role play other perspectives so that they truly step outside their own perspective to see problems from the viewpoint of other theories and modes of practice. Likewise, just as Belenky et al. argued, Schon suggests that teachers must be willing to reflect aloud and share their own evolving reasoning processes with students.

> When a coach reflects aloud on his own knowing-in-action and encourages his students to reflect aloud on theirs, both parties are more likely to become aware of gaps in their descriptions and understandings.[64]

One of the most important messages that comes from Schon's research is the extraordinary complexity and inevitable slow pace of this kind of reflective learning. One of the major obstacles to success, as Schon notes, is that many students have unrealistically high expectations about how easily they will make the transition to practice. They expect to get things right the first time, and, no doubt because of the socialization they have experienced in schools,[65] many students find it extraordinarily difficult to accept that the acquisition of artistry is a slow, arduous task:

> Students hold unrealistically high expectations for their performance. Once they become aware of their errors, they believe they should be able to produce complete and perfect interventions. They see error as failure, and when they repeat their errors, they experience a blow to self-esteem. They do not as yet have the idea of a learning process in which imperfect actions are continually modified through reflection-in-action. Hence, their growing awareness of complexity and dilemma leads them to discouragement or even despair.[66]

A central role of the teacher in a reflective practicum, is to create an environment that allows students, as comfortably as

possible, (1) to recognize their existing way of knowing; (2) to go beyond it by constructing new ways of knowing through the exchange of meanings and understandings with others; and (3) to enable students to progressively refine the epistemological basis of their practice, by analyzing and refining their performance in a real-world practical setting. Schon summarizes the developmental goal of a reflective practicum as follows:

> When coach and student are able to risk publicly testing private attributions, surfacing negative judgments, and revealing confusions or dilemmas, they are more likely to expand their capacities for reflection in and on action and thus more likely to give and get evidence of the changing understandings on which reciprocal reflection depends.[67]

Although Schon has not engaged in a systematic investigation of how a reflective practicum might help bridge the gap between theory and practice in teacher education, he does offer some general reflections on the issue. Schon suggests that in the initial stages of teacher preparation, teacher educators should begin "by engaging teachers in tasks where they can explore their own learning."[68] The purpose of this exploration is to allow students (1) to become familiar with the epistemological assumptions and reasoning strategies that govern their current approach to learning; and (2) to provide opportunities, through reflection and sharing of understanding, for intellectual growth and epistemological expansion.

Once students have had ample opportunity to engage in reflection, opportunities for practice should be provided to enable the students (1) to begin to recognize these same learning processes in others; and (2) to begin experimenting with facilitating the growth of others. Schon sums up his idea of teaching as a process of ongoing reflective experimentation, as follows:

> Later still, they might shift their attention to the classrooms in which they interact with children. Here, they would be attentive to the ways in which children's learning is like or unlike the kinds of learning they have detected in themselves. They would be encouraged to think of their teaching as a process of reflective experimentation in which they try to make sense of the sometimes puzzling things children say and do, asking themselves, as it were, 'How must the kids be thinking about this thing in order to ask the questions, or give the answers, they do?'[69]

Before examining the researchability of this approach within teacher education we will first explore the implications of reflective inquiry for teacher empowerment.

Teachers' Beliefs and Teacher Empowerment: A Philosophical Perspective

Albert Shanker comments on what is an increasing fact of life for public school teachers in this other than halcyon period of educational reform:

> Teachers, even more than convicts, are constantly subject to being "reformed." Almost every new term brings a fresh spate of mandates for 'improvement'--a fool-proof curriculum, a state-of-the-art staff development program, a sure-fire student or teacher evaluation system, or the umpteenth revision of the unabridged administrative guidelines for "effective" teaching and learning. Usually, the teachers haven't asked for any of this--and haven't gotten the help they <u>have</u> asked for. They rarely have any input into the reforms. And, increasingly, they are not even free to adapt these policies into practices that fit the needs of their particular school and students.[70]

The lack of teacher inclusion in the authoring of reform policies and strategies is symptomatic of the extent to which current reform postures negate our rhetorical commitment to a democratic ethos in the teaching profession. The end result of this negation is the "deskilled" teacher, at best; the absent teacher at worst. Teacher empowerment is an altogether necessary corrective strategy to the all too prevalent lack of teacher input in current reformist postures in professional education.

Jack Frymier has argued recently that a result of recent reform efforts in American education has been to create the "neutering" of teachers:

> Neutered teachers lack physical strength and energy, enthusiasm for their work, and motivation. For teachers, motivation is as important as cognitive and professional skills. Attracting the best and the brightest into teaching is not enough. These individuals must not be thwarted in their efforts to teach and to improve.[71]

The solution to "neutering," Frymier asserts, is to <u>empower</u> teacher authority by helping teachers to develop "an internalized locus of control." Writes Frymier:

> Teachers and principals, supervisors and superintendents, boards of education and state legislators all must appreciate the possibilities of school improvement efforts that marshal the motivations and unleash the talents of those who work directly with children day after day.[72]

If we agree on the necessity, indeed the urgency, of rethinking relationships between teacher autonomy, teacher authority, teacher freedom, and teacher responsibility in the provisioning of pedagogical strategies, it is our assumption that this rethinking must begin with a reconceptualization of pre-service professional teacher education. A reordering of programmatic priorities which, among other objectives, seeks to restore what Rexford Brown elsewhere has termed "thoughtfulness" in the sense of "careful, reasoned thinking" and what we choose to term "reflective inquiry" to pre-service and in-service teacher education is warranted. It is our belief that a reflective inquiry approach to educational discourse and educational policy is a fundamental component of professional teacher education and a <u>necessary</u> component of teacher empowerment.[73]

Before commenting specifically on necessary relationships between reflective inquiry and teacher preparation, it is necessary to clarify

what we denote as "reflective inquiry." Many critics have asserted that professional teacher preparation in the United States is governed in content and structure by what Henry Giroux and others have termed "technical rationality." According to this style of rationality knowledge about the educational process results from and, in fact conforms to, four organizing principles: a) educational theory is rooted in scientifically derived, empirically verifiable postures having lawlike characteristics, chief among which is that of being accountable to objectified evaluation; b) educational theory, like scientific theory, is value-free, objective, and cast in neutral descriptions; c) causation proceeds from a view of probability in which disparate, isolated parts interrelate with each other according to discoverable lawlike regularity; d) educators, themselves, must act in a value-free manner by appropriating objective styles of inquiry.[74] Technical rationality in professional teacher education remains, in the mid-1980s reform reports on teacher preparation, the predominant mode of inquiry. Reflective inquiry, as the earlier quote from Shanker suggests, remains an anathema in American teacher education reform.

As Linda Darling-Hammond has noted, the net results of efforts to impose technical rationalism on the teaching profession were twofold: "emphasis on procedural conformity to narrowly configured objectives at the expense of more creative forms of teaching and learning; and dissatisfaction on the part of teachers who find their ability to respond to students' needs reduced."[75] That these results have occurred is a consequence of the devolution of technical rationality into technical rationalism. It is not inappropriate to suggest that

in the 1970s technical rationality became technical rationalism as a style of inquiry assumed the characteristics of an etched-in-stone ideology in which accountability stratagems like management-by-objectives, minimum-competency testing, and competency-based education became highly regarded means to establish teacher proof curricula; ideology or not, technical rationality encouraged teachers to do as they were told with expectation that students would learn as they were supposed to. Stanley Aronowitz's stricture regarding the debasement of critical thinking in teacher preparation programs is as disconcerting. Writes Aronowitz,

> . . . critical thinking, offering a chance to the student to construct his own reality, has been debased by the emphasis put on "methods" rather than content in the preparation of teachers by teachers colleges. This approach to the curriculum has contributed to the training of several generations of...teachers whose main skill has become maintaining control over the class rather than understanding the cognitive and affective processes of learning. Moreover, thousands of young teachers suffer from intellectual ignorance; they bring few resources to their work and often fall back on policelike behavior toward students to compensate for their inability to teach.[76]

What understandings of cognitive and affective processes of learning can we in teacher education studies encourage in teachers-to-be, understandings that present an alternative mode of rationality to that of technical rationalism?

In a perceptive review of Belenky, et al. Women's Ways of Knowing: The Development of Self, Voice, and Mind, Lynda Stone states that a number of teacher candidates with whom she works exhibit epistemological perspectives termed by Belenky and her colleagues as subjectivist knowledge and separate procedural knowledge. Subjectivist knowers rely on personal intuition, "gut feelings," to construct their knowledge base about educational policy and practice;

separate procedural knowers rely on the external authority of objectified reason, i.e., technical rationalism, to build their epistemological perspective on teaching. Stone rejects both perspectives as appropriate cognitive modes in teacher preparation and argues for what she refers to as a "feminist trialectic." Her "feminist trialectic" consists of cognitive modes identified as "reasoned self-reflection," "responsible connection with close others," and "critical appraisal of authorities:"

> In my teaching I want to move their thinking in three directions...: toward reasoned self-reflection, toward responsible connection with close others, and toward critical appraisal of authorities...I want them to become "theoretical teachers," capable of constructing rational positions about issues in their own work based on an integration of the three processes of thinking and knowing.[77]

In Stone's classes the "feminist trialectic" is manifested in a process of reflective inquiry which includes three components: consciousness, conversation, and theoretical contemplation, each element realized through the mechanisms of ongoing small-group meetings, large group sharing and critique of ideas, the integration of careful reading with all facets of class discussion, brief substantive written expositions, and formal group oral presentations.[78] Stone ponders what many of us in teacher preparation courses have pondered. Are we helping to develop reflective or, to use Stone's rubric, "theoretical teachers?" Stone depicts herself as a reformer; she does not want teachers merely "to fit in."

There is a growing body of critical literature standing in stark contrast to the technical rationalism view of teachers as mere "fit ins." Twenty years ago, for example, Israel Scheffler argued against technicism in the teaching profession. Rather than viewing teachers

as performers, professionally prepared to implement any goals set for them, Scheffler urged that teachers should be perceived as "free men and women with a special dedication to the values of the intellect and the enhancement of the critical powers of the young."[79]

In promoting foundational programs in professional teacher education which further the concept of teaching as especially committed to values of the intellect, we are attracted to Barth's and Shermis' notion of reflective inquiry as a pedagogical means to encourage students to explore their own values and to define issues within their experiential contexts and the texture of their daily lived lives.[80] There is always the possibility, as Henry A. Giroux asserts, that reflective inquiry may dissolve into a subjective idealism which fails to question existing social arrangements in professional education. It may well be the case that, again as Giroux asserts, pre-service teachers should be encouraged to become "resisting intellectuals" rather than "critical intellectuals," "accommodating intellectuals," or "hegemonic intellectuals." In Giroux's lexicon "critical intellectuals" oppose prevailing social arrangements in a solely cognitive sense; "accommodating intellectuals," support prevailing social hegemonies; "hegemonic intellectuals" seek to preserve existing patterns of dominance in society. "Resisting intellectuals," he argues, insert education directly into the political arena by viewing schooling as "both a struggle for meaning and a struggle over power relations." (Emphasis original). Giroux posits that the "resisting intellectual" alone has the capacity and the commitment to construct a critical pedagogy in which reflective inquiry becomes a "fundamental social project to help

students develop a deep and abiding faith in the struggle to overcome injustices and to humanize themselves.[81] However we are to categorize teachers, however we are to translate social policy issues into agendas for action and criticism, it is altogether clear that teacher empowerment issues are predicated on questions relating to power relations of the work force in professional education. Albert Shanker urges us to query what "empowerment" means "if the school schedule, teacher and pupil class assignments, etc. have all been made in advance?"[82]

Projects like the Hammond, Indiana, School Improvement Process and the Dade County Public Schools, Florida, experiment in shared decision-making in 32 elementary, junior high, and senior high schools are beginning to question the conventional factory model of vertical, top-down decision-making patterns in our public school system. As public school districts seek to implement participatory and sharing decision-making patterns, teachers who are, to borrow Belenky's epistemological categories above, "subjectivist" or "separate procedural" knowers will need to adopt a more reflective cognitive stance if horizontal patterns of participation are to be effective in pedagogical management.[83]

Arlene Ortenzo, a third-grade teacher at North Miami Elementary School, one of the schools participating in the Dade County Public Schools project in shared decision-making, recently reflected on the project's impact on her in regard to last autumn's move of half the North Miami Elementary School teachers into new classrooms, always a sensitive procedure insofar as it may be viewed as disruptive to the working environment. States Ortenzo:

> Before, you would have gone to a faculty meeting and be given the decision as if it came down from heaven above...In this case we all had some input. We were treated as professionals. What more could you ask for?[84]

It seems to us axiomatic that, if teachers are to have input into pedagogical management, and we clearly think they should, teachers-to-be should experience reflective inquiry in teacher preparation programs. It is in this reflection that the beginnings of teacher empowerment lie.

Conclusion: A Call for Research

As we noted at the outset, thinking of teacher education in terms of the facilitation of change in view raises a number of interesting research questions both with regard to the nature and facilitation of cognitive and epistemological development and with respect to the relation between theory and practice. We believe that the conceptualization outlined here not only helps frame these questions, but it also provides us with important conceptual and methodological tools to aid in the investigation of these processes. Among the conceptual questions that are in need of investigation if this approach to teacher education is to be understood and validated, are the following:

A. TEACHER'S BELIEFS

(1) What kind of implicit and explicit theories do preservice and inservice teachers hold about the nature of knowledge (i.e., epistemology) and the purpose and practice of education (i.e., pedagogy)?

(2) Considered in terms of theories of adult intellectual development,[85] what level of intellectual development have preservice and inservice teachers attained? Is there a relationship between their level of development the complexity of the epistemological and pedagogical theories they hold?

(3) What features of a reflective inquiry approach to teacher education facilitate change in view (i.e., transition to a more relativistic epistemology and to more complex pedagogical theories)? How can this transition process be characterized?

B. THEORY AND PRACTICE

(4) What is the relationship between teachers' implicit beliefs about teaching and their actual practice of teaching?

(5) What features of a reflective inquiry approach to integrating theory and practice facilitate the actual deployment of newly learned approaches to teaching in real-world situations? How can this transition process be characterized?

Although we have not yet begun to address these questions systematically, we have begun making some curricular modifications to a foundational course in educational psychology for preservice teachers in order to assess the feasibility of using reflective inquiry techniques for the purposes already discussed.[86] In keeping with the ideas presented above, the class is premised on the idea that students gain a better understanding of teaching if they simultaneously teach, learn about teaching, and reflect on their current and changing epistemologies and pedagogical theories. In the course we try to avoid giving students neat pedagogical prescriptions. Instead, students are encouraged to find within themselves the resources to become effective, reflective teachers.

In terms of style of instruction, the class is taught in a manner that approximates the connected teaching model discussed earlier. A climate of open communication is established in which the students feel comfortable articulating and sharing their theories of teaching, with the explicit goal of increasing mutual understanding. No textbook is used. Instead, students are exposed to a variety of books and readings designed to challenge, extend and enrich their current conceptualization of teaching. Students are encouraged to view the

class as a learning laboratory, and are asked to reflect on and evaluate the kind of learning that occurred for them in the differing learning formats we use (e.g., large and small group discussions; reciprocal teaching techniques). Since reflection is a key component, the class incorporates a variety of writing assignments which are designed to facilitate reflection. Principal among these is a journal in which students engage in free writing and reflection on their learning. Students also use the journal to experience writing in different voices and from different points of view.[87] At the conclusion of the course, students write a "final draft," formal statement of their philosophy of teaching.

With respect to facilitating the relationship between theory and practice, apart from having students take turns teaching in class, and having them research and report on applications of the ideas we discuss to their chosen subject areas, we have taken explicit steps to increase the links between the contents of the course and the reality of schools. We have an exchange arrangement with two volunteer teachers from a local school. The two teachers, as part of a professional development experience for them, are released from classes two afternoons to come to the university to attend our course.[88] The teachers serve as mentors and group leaders for students and provide a useful reality perspective on the issues under discussion. Furthermore, the teachers have designed a supervised field experience in the school, in which all students participate. The university faculty member also spends ten hours per week in the school striving to implement some of the ideas discussed in class. The end result of all of these overlapping activities is that we all share a common

experiential background (in school and in the university) and we all interact as learners, attempting to integrate our respective perspectives in order to solve educational problems. Our experience so far suggests that this mix of university, preservice and inservice teachers, all grappling with the same theoretical and practical problems, holds the greatest promise for opening up the kind of educational dialogue from which teacher growth and school improvement will eventually come.

We do not, as yet, have any data to demonstrate the effectiveness of this approach. However, to provide a preview of the potential of reflective inquiry, consider this brief example. One of us, while teaching a graduate course in human development to inservice teachers, encountered a student with a very firm, singular view that a behavioral approach is the only method that works in disciplining students. Fortunately, this student was articulate, and, though insistent on the correctness of her own view, was intrigued by the possibility that an entirely different approach might work. Over a period of two weeks, students in the class engaged in an intense debate over the relative merits of different approaches to discipline. At the end of that debate, the student made a long entry in her journal, of which the following is an extract:

> The key here, of course, is the teacher. We basically teach the way we were taught, so teach us differently. Then we will teach differently. I don't believe teachers are asked to practice reasoning skills themselves. It was easy for myself to adopt this behavioral management theory. Get into my reasoning: (1) I had no theory which worked at that point. (2) This behavior management theory worked. (3) I had no other theory presented to challenge my theory. Well . . .
>
> I come to class all equipped to study to get a "grade." Then a new theory is introduced to myself. Due to the 'rusty' condition of my reasoning skills, I burst forward to prove and defend my theory. But, by listening to other

> points of view I have compromised my own beliefs. I have taken up the new ideas, reevaluated my current ideas and constructed a new theory on discipline.[89]

A year later, this teacher continues to keep a journal on her attempts to translate these ideas into effective practice. This process of construction is, we believe, not only a necessary component of the decision-making that competent teachers engage in, but it also forms the basis for teacher empowerment and professional growth.

Notes

[1]For review see Michael O'Loughlin, "The development of skills in the coordination of theory and evidence" (Ph.D. dissertation, Teachers College, Columbia University, 1988).

[2]Deanna Kuhn, Eric Amsel and Michael O'Loughlin, The development of scientific thinking skills (Orlando, FL: Academic Press, 1988); O'Loughlin, "The development of skills in the coordination of theory and evidence."

[3]Sylvia Scribner, "Modes of thinking and ways of speaking: Culture and logic reconsidered," in Thinking: Readings in cognitive science, ed. P. N. Johnson-Laird and P. C. Wason (Cambridge: Cambridge University Press, 1977).

[4]O'Loughlin, "The development of skills in the coordination of theory and evidence"; see also Kuhn, Amsel and O'Loughlin, The development of scientific thinking skills; and David Moshman, "To really get ahead, get a metatheory," in New directions in child development (Vol. 5), ed. Deanna Kuhn (San Francisco: Jossey Bass, 1979).

[5]O'Loughlin, "The development of skills in the coordination of theory and evidence." The importance of this type of reflective awareness is emphasized by Jean Piaget in The development of thought: Equilibration of cognitive structures (New York: Viking Press, 1977); and by L. S. Vygotsky, in Mind in society: The development of higher psychological processes (Cambridge: Harvard University Press, 1978).

[6]Annette Karmiloff-Smith and Barbel Inhelder, "If you want to get ahead, get a theory," Cognition 3 (1975): 195-212.

[7]Donald Schon, Educating the reflective practitioner (San Francisco: Jossey Bass, 1987); See also Thomas L. Good and Jere E. Brophy, Educational psychology: A realistic approach (New York: Longman, 1986).

[8]For review see O'Loughlin, "The development of skills in the coordination of theory and evidence."

[9]Douglas Barnes, From communication to curriculum, (England: Penquin Books, 1976).

[10]Mary Field Belenky, Blythe McVicker Clinchy, Nancy Rule Goldberger and Jill Mattuck Tarule, Women's ways of knowing: The development of self, voice, and mind. (New York: Basic Books, 1986).

[11]Philip W. Jackson, "The mimetic and the transformative: Alternative outlooks on teaching," in The practice of teaching, (New York: Teachers College Press, 1986).

[12]Ibid, p. 117.

[13]Ibid.

[14]See, for example, Mortimer Adler, Paideia proposal (New York: Macmillan, 1982); John I. Goodlad, A place called school: Prospects for the future (New York: Macmillan, 1984); Theodore R. Sizer, Horace's compromise: The dilemma of the American high school (Boston: Houghton Mifflin, 1985).

[15]Robert Glaser, "Education and thinking: The role of knowledge," American Psychologist 39 (1986): 93-104.

[16]R. Rothman, "Study links poor writing to lack of higher-order skills," Education Week, (1986) pp. 1; 5.

[17]Lynne V. Cheney, Chairman, American memory: A report on the humanities in the nation's public schools (Washington, D.C.: National Endowment for the Humanities, 1987); E. D. Hirsch, Jr., Cultural literacy: What every American needs to know (Boston: Houghton-Mifflin, 1987).

[18]Albert Shanker, "Education now being served . . . but how many takers?", New York Times, December 13, 1987, p. D9.

[19]Walter Karp, "Why Johnny can't think: The politics of bad schooling," Harpers, June 1985, p. 70.

[20]Benjamin S. Bloom, "The two sigma problem: The search for methods of group instruction as effective as one-to-one tutoring," Educational Researcher 13 (1986): 4-16 (quote from p. 13).

[21]Michael O'Loughlin, "Meeting the challenge by offering a challenge: A cognitive perspective on teaching and learning" (Paper published in the proceedings of the 1987 Conference of the College of Education and Allied Professions: Focus on the student, Bowling Green State University, 1988). Manuscript available from author. See also, Shanker, "Education now being served . . . but how many takers?"

[22]For studies that border on the ideas under discussion see Douglas Barnes and D. Shemilt, "Transmission and interpretation," Educational Review 26 (1976) [Reported in Barnes, From communication to curriculum]; also see Robert V. Bullough Jr., "First-year teaching: A case study," Teachers College Record 89 (1987): 219-238.

[23]Barnes, From communication to curriculum; Jackson, The practice of teaching.

[24]For discussion of cognitive deficits see Glaser, "Education and thinking: The role of knowledge"; L. McMillen, "Many professors start at the beginning by teaching their students how to think," Chronicle of Higher Education, March 3, 1986: pp. 23-24; O'Loughlin, "Meeting the challenge by offering a challenge: A cognitive perspective on teaching and learning"; Rothman, "Study links poor writing to lack of higher-order skills."

[25]William Perry, Forms of intellectual and ethical development in the college years (New York: Holt, Rinehart and Winston, 1970).

[26]Stephen Brookfield, Understanding and facilitating adult learning (San Francisco: Jossey-Bass, 1986), p. 17.

[27]Michael W. Apple, "Curricular form and the logic of technical control," in Ideology and practice in schooling, ed. M. W. Apple and L. Weis (Philadelphia: Temple University Press, 1983); James W. Garrison, "Democracy, scientific knowledge and teacher empowerment," Teachers College Record, (in press).

[28]This statistic comes from Kevin Ryan, "The care and feeding of the new teacher," in Houghton Mifflin Educator's Forum, Fall 1987, p. 2. In that article Ryan states, "A recent Rand study reported that 40 percent of our teachers leave teaching by the end of the second year, and there is a strong suspicion that they leave because they do not experience much success or satisfaction."

[29]Shanker, "Education now being served . . . but how many takers" (p. D9).

[30]See, for example, National Commission on Excellence in Education, A nation at risk: The imperative for educational reform (Washington, D.C.: Government Printing Office, 1983).

[31]Raymond Wlodkowski, Invited address to Midwest Association of Teachers of Educational Psychology, Bowling Green, OH, October, 1987.

[32]Garrison, "Democracy, scientific knowledge and teacher empowerment"; Jackson, The practice of teaching.

[33]See, for example, Carol Gilligan: In a different voice, (Cambridge, MA: Harvard University Press, 1982); Robert Kegan, The evolving self: Problem and process in human development (Cambridge, MA, Harvard University Press, 1982); Daniel J. Levinson, The seasons of a man's life (New York: Ballantine Books, 1978); The connection between developmental theory and adult education is particularly explicit in Laurent Daloz, Effective teaching and mentoring: Toward a transformational model of adult learning experiences (San Francisco: Jossey-Bass, 1986); and Belenky et al., Women's ways of knowing: The development of self, voice, and mind.

[34]See, for example, Brookfield, Understanding and facilitating learning; Malcolm Knowles, Self-directed learning: A guide for learners and teachers (New York: Cambridge Book, 1975); Stephen Brookfield, "Sources in self-directed learning theory and practice" (annotated bibliography), in the author's Self-directed learning: From theory to practice. (San Francisco: Jossey-Bass, 1985).

[35]Brookfield, Understanding and facilitating adult learning.

[36]Daloz, Effective teaching and mentoring: Toward a transformational model of adult learning experiences.

[37]Peter Elbow, Writing without teachers (Oxford: Oxford University Press, 1973). Schon, Educating the reflective practitioner.

[38]Belenky et al., Women's ways of knowing: The development of self, voice, and mind.

[39]Jackson, The practice of teaching.

[40]Brookfield, Understanding and facilitating adult learning, p. 11.

[41]Ibid, pp. 16-17.

[42]Belenky et al., Women's ways of knowing: The development of self, voice, and mind.

[43]Ibid, p. 3.

[44]Ibid, p. 228.

[45]For useful discussion of the application of these ideas in a classroom setting, particularly through the use of a socratic or inquiry approach to teaching see Jackson, The practice of teaching; Barnes, From communication to curriculum; and Hugh Petrie, The dilemma of inquiry and learning (Chicago: University of Chicago Press, 1981).

[46]Belenky et al., Women's ways of knowing: The development of self, voice, and mind, p. 193.

[47]Ibid, p. 191.

[48]Barnes, From communication to curriculum.

[49]Belenky et al., Women's ways of knowing: The development of self, voice, and mind, p. 216.

[50]Barnes, From communication to curriculum.

[51]Belenky et al., Women's ways of knowing: The development of self, voice, and mind, p. 217.

[52]For an explicit description of the metaphor of teacher as guide, see Daloz, Effective teaching and mentoring: Toward a transformational model of adult learning experiences.

[53]Belenky et al., Women's ways of knowing: The development of self, voice, and mind, pp. 222-223.

[54]For an example of the importance place on caring, see Daloz, Effective teaching and mentoring: Toward a transformational model of adult learning experiences.

[55]Nel Noddings, Caring: A feminine approach to ethics and moral education (Berkeley, CA: University of California Press, 1986), p. 180, quoted in Belenky et al., Women's ways of knowing: The development of self, voice, and mind, p. 225.

[56]Belenky et al., Women's ways of knowing: The development of self, voice, and mind, p. 213.

[57]Schon, Educating the reflective practitioner.

[58]See Chris Argyris and Donald A. Schon, Theory in practice: Increasing professional effectiveness (San Francisco: Jossey-Bass, 1976); Donald Schon, The reflective practitioner (New York: Basic Books, 1983); Schon, Educating the reflective practitioner.

[59]Schon, Educating the reflective practitioner, p. 39.

[60]Schon draws his definition of tacit knowledge from Michael Polanyi, The tacit dimension, (New York: Doubleday, 1967).

[61]Schon, Educating the reflective practitioner, p. 300.

[62]Ibid, p. 17.

[63]Ibid, p. 298.

[64]Ibid, p. 301.

[65]See Martin V. Covington and Donald G. Beery, Self-worth and school learning (New York: Holt, Rinehart and Winston, 1976) for a detailed analysis of how schools socialize unhelpful attitudes toward work in students.

[66]Schon, Educating the reflective practitioner, p. 291.

[67]Ibid, p. 302.

[68]Ibid, p. 322.

[69]Ibid, p. 323.

[70]Albert Shanker, "Teachers as Reformers: Experiments Offer Cures for Schools," The New York Times, November 2, 1987, p. D9.

[71]Jack Frymier, "Bureaucracy and the Neutering of Teachers," Phi Delta Kappan, 69 (1987): p. 9.

[72]Ibid, p. 9.

[73]Rexford Brown, "Who is Accountable for 'Thoughtfulness'?," Phi Delta Kappan, 69, (1), 1987: p. 49. See also Maxine Greene, "How Do We Think About Our Craft," Teachers College Record, 86, (1984): 55-67.

[74]Henry A. Giroux, Theory and Resistance in Education: A Pedagogy for the Opposition. (South Hadley, Massachusetts: Bergin & Garvey Publishers, Inc., 1985): 176-178.

[75]Linda Darling-Hammond, Beyond the Commission Reports: The Coming Crisis in Teaching. (Santa Monica, California: The Rand Corporation, 1984): p. 15.

[76]Stanley Aronowitz, False Promises. (New York: McGraw-Hill): 1973, 313-314. Quoted in Edward H. Berman, "Technicism, Educational Reform, and Teacher Empowerment," p. 1. (Paper presented to the American Educational Studies Association, Chicago, Illinois, November, 1987).

[77]Lynda Stone, Review of Women's Ways of Knowing: The Development of Self, Voice and Mind in Teachers College Record, 89, (1987): p. 310.

[78]Ibid, p. 311.

[79]Israel Scheffler, "University Scholarship and the Education of Teachers," Teachers College Record, 70, (1968): p. 11.

[80]J. L. Barth and S. S. Shermis, "Defining Social Problems," Theory and Research in Social Education, 7, (1979): passim.

[81]Henry A. Giroux, Theory to Resistance in Education: A Pedagogy for the Opposition, 186-187; Henry A. Giroux, "Teachers and the Role of the Resisting Intellectual," Philosophical Studies in Education, (1984): p. 33. For further explication of the categories of "intellectualism" Giroux creates, see his "Teachers and the Role of the Resisting Intellectual," pp. 33-35. There are, of course, problematics associated with the concept of teachers as "resisting intellectuals," not the least of which is, as Richard LaBrecque reminds us, that "resistance" is linked to a preferred social theory and "education becomes instrumental to purposes outside of it." See Richard LaBrecque, "Teachers as Resisting Intellectuals: Cultural Marxism in Educational Theory," Philosophical Studies in Education, 1984, p. 44.

[82]Albert Shanker, "Humpty Dumpty's Lexion: re-struc-ture (VT): You Name it," The New York Times, January 10, 1988, p. D7.

[83]For detailed descriptions of the Hammond, Indiana, and Dade County, Florida projects see respectively, Jill Casner-Lotto, "Expanding the Teacher's Role: Hammond's School Improvement Process," Phi Delta Kappan, 69, (1988): pp. 349-353; Edward B. Fiske, "Miami Schools: Laboratory for Major Changes," The New York Times, January 10, 1988, pp. 1, 10.

[84]Ibid, p. 10.

[85]See, for example, Belenky et al., Women's ways of knowing: The development of self, voice and mind; Karen S. Kitchener and Patricia M. King, "Reflective judgment: Concepts of justification and their relation to age and education," Journal of Applied Developmental Psychology 2, (1981): 89-116; Perry, Forms of intellectual and ethical development in the college years.

[86]For a related approach to teaching educational psychology in a reflective manner, see Paul Shaker and Walter Ullrich, "An educational psychology curriculum designed to foster reflective thinking," (Paper presented at the Conference of the Midwest Association of Teachers of Educational Psychology, Bowling Green State University, October, 1987.

[87]For ideas on how to use a journal as a pedagogical tool see Toby Fulwiler, "Using a journal," in Writer's guide: Psychology ed. L. A. Bond and A. S. Magistrale (Boston: D. C. Heath, 1987); for a justification of the use of writing in teacher education see Lois Stover, "Writing to learn in teacher education," Journal of Teacher Education, July-August 1986: 20-23.

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